

# Data Storage

Fraction in Binary

# Fraction in Binary

## Radix Point

- ✓ As we have decimal point
- ✓ Digits on left side represent the whole number
- ✓ Digits on right side represent the fractional part

# Fraction in Binary

## Example

$2^2$	$2^1$	$2^0$	radi x	$2^{-1}$	$2^{-2}$	$2^{-3}$
4	2	1	.	$1/2$	$1/4$	$1/8$
1	0	1		1	0	1

# Fraction in Binary

## Example

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4	2	1	.	1/ 2	1/4	1/8
1	1	1		1	1	1

# Fraction in Binary

## Example

$2^2$	$2^1$	$2^0$	radi x	$2^{-1}$	$2^{-2}$	$2^{-3}$
4	2	1	.	$1/2$	$1/4$	$1/8$
0	1	1		0	1	1

# Addition in Fractional Numbers

1101.11  
101.110

Align Radix

8	4	2	1	Radix	1/ 2	1/ 4	1/ 8	1/ 16
1	1	0	1	.	1	1	0	0
0	1	0	1	.	1	1	0	0

# Addition in Fractional Numbers

1.0010  
1000.01

Align Radix

8	4	2	1	Radix	1/ 2	1/ 4	1/ 8	1/ 16
0	0	0	1	.	0	0	1	0
1	0	0	0	.	0	1	0	0

# Addition in Fractional Numbers

100.10  
100.0001

Align Radix

8	4	2	1	Radix x	1/ 2	1/ 4	1/8	1/1 6
0	1	0	0	.	1	0	0	0
0	1	0	0	.	0	0	0	1

# Summary

## Binary Fraction

- ✓ Representation
- ✓ Addition